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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Dieter Staiger

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IBM CORPORATION

3039 CORNWALLIS RD.

DEPT. T81 / B503, PO BOX 12195

RESEARCH TRIANGLE PARK, NC 27709

EXAMINER

EHNE, CHARLES

ART UNIT

PAPER NUMBER

2113

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/801,203	Applicant(s) STAIGER, DIETER	
	Examiner Charles Ehne	Art Unit 2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 3 objected to because of the following informalities: "of the donor-ECU (8) the donor ECU...", a comma is missing. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 recites the limitation "resources to said breakdown ECU" in line 13.

There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "resources to said breakdown ECU" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "said storage area" in line 13. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Wong (US 5,957,985).

As to claim 1, Wong discloses a method for operating an embedded system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU) (10, 12, 14, 16, 18), each ECU having separate need of resources regarding at least processing and storage subsystem, characterized by the steps of:

a) operating a preselected one of said ECUs as a "donor" ECU (18) being provided with predefined storage subsystem resources (column 3, lines 46-48 & column 4, lines 18-20), and

b) in case of a breakdown of a storage subsystem and/or processing subsystem of an "non-donor" ECU (12) donating respective predefined resources to said breakdown ECU (12) (column 8, lines 50-60).

As to claim 4, Wong discloses the method according to claim 1, further in case of breakdown of a non-donor ECU processor (20) breakdown comprising the step of:

operating said donor ECU (18) in a shared-processor mode, in which a predetermined controllable extent of donor-ECU processor (28) resources is used to run applications, which have run at the breakdown ECU (12) before its breakdown (column 8, lines 54-57).

As to claim 5, Wong discloses the method according to claim 1, in which the donor ECU (18) is a human interface Multimedia unit, and a non-donor ECU (12) is a

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real-time ECU having a considerable lower storage need than the donor ECU (column 4, lines 33-45 & column 7, lines 21-23).

As to claim 6, Wong discloses the method according to claim 1, in which a breakdown is defined by errors limitedly resulting in a non-successful operation of a subtotal of applications running in an ECU (column 7, lines 62-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2,3 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong taken in view of Heugel (5,495,570).

As to claim 2, Wong discloses the method according to claim 1 further comprising the steps of:

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a) operating a preselected one of said ECUs as a "donor" ECU (18) with a storage subsystem (32) being increased for some predetermined degree (column 8, lines 57-60),

b) reserving for at least one non-donor ECU (12) of said ECUs a respective predetermined storage area (50) in the storage subsystem (32) primarily associated with said preselected donor ECU (18) of said plurality of ECUs (column 7, lines 24-26),

c) providing to each non-donor ECU (12) an access to a respective one of said reserved storage areas (50) (column 7, lines 27-29),

d) monitoring the operation of said ECUs, in case of breakdown of a non-donor ECU (12) storage subsystem (24) breakdown (column 8, lines 17-21).

Wong fails to disclose the steps of:

e) transforming addresses associated with said reserved storage area (50) to new addresses adapted for being accessible by said breakdown ECU (12),

f) assigning access to said non-donor ECU (12) to a respective one of said reserved storage areas (50) by using said transformed new address.

Heugel discloses a multi-processor system having mirrored memory units accessible by either processor (Abstract, lines 1-2). Heugel does disclose the steps of:

e) transforming addresses associated with said reserved storage area (50) to new addresses adapted for being accessible by said breakdown ECU (12) (column 5, lines 45-63),

f) assigning access to said non-donor ECU (12) to a respective one of said reserved storage areas (50) by using said transformed new address (column 5, lines 52-54).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Heugel's method of addressing commonly shared storage areas with Wong's method of providing access to reserved storage area's. A person of ordinary skill in the art would have been motivated to make the modification because if an element fails, redundant data allows continued operation of its paired element to continue processing uninterrupted (column 3, lines 37-39).

As to claim 3, Wong discloses a method for operating an embedded system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU) (10, 12, 14, 16, 18), each ECU having separate need of resources regarding at least processing and storage subsystem (see claim 1 rejection). Wong fails to disclose in which a split-cycle mode operation is performed in which in one memory operation cycle of the donor-ECU (18) the donor ECU and one non-donor ECU (12) access the same storage subsystem (32).

Heugel discloses a multi-processor system having mirrored memory units accessible by either processor (Abstract, lines 1-2). Heugel does disclose wherein a split-cycle mode operation is performed in which in one memory operation cycle of the donor-ECU (18) the donor ECU and one non-donor ECU (12) access the same storage subsystem (32) (column 5, lines 36-40).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Heugel's split-cycle mode operation with Wong's access the common storage subsystem. A person of ordinary skill in the art would have been motivated to make the modification because Heugel's method of reserving the storage area allows for permits full duplex operation to the common storage unit with minimal degradation in processing performance (column 2, lines 26-29 & column 5, lines 39-40).

As to claim 8, Heugel discloses the method according to the preceding claim 3, in which write and read accesses are performed permanently to both, the respective own donor-ECU storage subsystem (32) and to a respective reserved area (50) in the donor-ECU subsystem, and said split-cycle operation mode is performed permanently (column 3, lines 45-49).

As to claim 9, Heugel discloses the method according to claim 8, further comprising the step of: a) in a split cycle comparing read data of a non-donor ECU (12) and respective redundant read data from said respective reserved storage area (50) in said donor-ECU (18), and if read data is not identical, initiating predetermined error management (column 4, lines 52-59).

As to claim 10, Heugel discloses the embedded system having means for performing the steps of a method according to claim 9, comprising a hardware logic circuit (40) connectable between a donor ECU (18) and a non-donor ECU (12), said hardware logic circuit (40) comprising logic means for implementing the donating functions (column 5, lines 41-49).

As to claim 7, Wong discloses a method for operating an embedded system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU) (10, 12, 14, 16, 18), each ECU having separate need of resources regarding at least processing and storage subsystem (see claim 1 rejection). Wong fails to disclose comprising the step of reserving said storage area (50) by hardware means, by processor-specific memory management means, operation system specific means, or middleware-specific means.

Heugel discloses a multi-processor system having mirrored memory units accessible by either processor (Abstract, lines 1-2). Heugel does disclose the steps of reserving said storage area (50) by hardware means, by processor-specific memory management means, operation system specific means, or middleware-specific means (column 5, lines 47-49).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Heugel's method reserving said storage area by processor-specific memory management means with Wong's method of providing access to reserved storage area's. A person of ordinary skill in the art would have been motivated to make the modification because Heugel's method of reserving the storage area allows for permits full duplex operation to the common storage unit (column 5, lines 39-40).

Allowable Subject Matter

Claims 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Ehne whose telephone number is (571)-272-2471. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert M. Benson
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